BUILDING AND ENVIRONMENT—VOLUME 37
CONTENTS

Vol. 37, No. 1

R. Hanna	1	Environmental appraisal of historic buildings in Scotland: the case study of the Glasgow School of Art
R.C. Gaur and **N.K. Bansal**	11	Effect of moisture transfer across building components on room temperature
C.-E. Hagentoft	19	Steady-state heat loss for an edge-insulated slab: Part I
C.-E. Hagentoft	27	Periodic heat loss for an edge insulated slab: Part II. A mixed boundary value problem
S. Deng	35	The application of feedforward control in a direct expansion (DX) air conditioning plant
R. Wiglusz, E. Sitko, G. Nikel, I. Jarnuszkiewicz and **B. Igielska**	41	The effect of temperature on the emission of formaldehyde and volatile organic compounds (VOCs) from laminate flooring — case study
A.W. Hago, A.A. Al-Rawas and **A. Al-Riyami**	45	Effect of varying cement content and curing conditions on the properties of sarooj (artificial pozzolana)
K. Hagström, A.M. Zhivov, K. Sirén and **L.L. Christianson**	55	Influence of the floor-based obstructions on contaminant removal efficiency and effectiveness
Z. Zhou, S.W. Rees and **H.R. Thomas**	67	A numerical and experimental investigation of ground heat transfer including edge insulation effects
S. Kumar	79	Live loads in office buildings: point-in-time load intensity
S. Kumar	91	Live loads in office buildings: lifetime maximum load
A.C. Iñigo and **S. Vicente-Tavera**	101	Surface-inside (10 cm) thermal gradients in granitic rocks: effect of environmental conditions
L. Zalewski, S. Lassue, B. Duthoit and **M. Butez**	109	Study of solar walls — validating a simulation model
A.O. Olotuah	123	Recourse to earth for low-cost housing in Nigeria
	131	Calendar

Vol. 37, No. 2

C. Ménézo, J.J. Roux and **J. Virgone**	133	Modelling heat transfers in building by coupling reduced-order models
W.K. Chow, W.Y. Fung and **L.T. Wong**	145	Preliminary studies on a new method for assessing ventilation in large spaces
M.G.L.C. Loomans and **A.W.M. v. Schijndel**	153	Simulation and measurement of the stationary and transient characteristics of the hot sphere anemometer
P. Blondeau, M. Spérandio and **F. Allard**	165	Multicriteria analysis of ventilation in summer period
C.-M. Liao and **K.-H. Chiu**	177	Wind tunnel modeling the system performance of alternative evaporative cooling pads in Taiwan region
P. Plathner and **M. Woloszyn**	189	Interzonal air and moisture transport in a test house: experiment and modelling

S.C. Hu, Y.K. Chuah and **M.C. Yen** 201 Design and evaluation of a minienvironment for semiconductor manufacture processes

209 Calendar

Vol. 37, No. 3

M. Sandberg and **B. Moshfegh** 211 Buoyancy-induced air flow in photovoltaic facades Effect of geometry of the air gap and location of solar cell modules

T. Hayashi, Y. Ishizu, S. Kato and **S. Murakami** 219 CFD analysis on characteristics of contaminated indoor air ventilation and its application in the evaluation of the effects of contaminant inhalation by a human occupant

H.W. Kua and **S.E. Lee** 231 Demonstration intelligent building—a methodology for the promotion of total sustainability in the built environment

S.C. Sekhar, K.W. Tham and **D. Cheong** 241 Ventilation characteristics of an air-conditioned office building in Singapore

S.M. Lo, D. Chen, K.K. Yuen and **W. Lu** 257 A numerical study of external smoke spread in designated refuge floor

E. Tanawa, H.B. Djeuda Tchapnga, E. Ngnikam, E. Temgoua and **J. Siakeu** 269 Habitat and protection of water resources in suburban areas in African cities

L. Mei and **G.J. Levermore** 277 Simulation and validation of a VAV system with an ANN fan model and a non-linear VAV box model

W.K. Chow and **G.C.H. Lui** 285 Numerical studies on evacuation design in a karaoke

Z.D. Chen and **Y. Li** 295 Buoyancy-driven displacement natural ventilation in a single-zone building with three-level openings

P. Demokritou, C. Yang, Q. Chen and **J.D. Spengler** 305 An experimental method for contaminant dispersal characterization in large industrial buildings for indoor air quality (IAQ) applications

J. Wyrwał and **A. Marynowicz** 313 Vapour condensation and moisture accumulation in porous building wall

R. Ooka 319 Field study on sustainable indoor climate design of a Japanese traditional folk house in cold climate area

331 Calendar

Vol. 37, No. 4

N. Rabie and **G.J. Delport** 333 Energy management in a telecommunications environment with specific reference to HVAC

W.M.G. Burdzik 339 Round-end cut truss webs — the South African Omniweb® experience

M. Bojic, F. Yik, K. Wan and **J. Burnett** 347 Influence of envelope and partition characteristics on the space cooling of high-rise residential buildings in Hong Kong

X.F. Gao, C.M. Tam and **W.Z. Gao** 357 Polymer cement plaster to prevent radon gas contamination within concrete building structures

A.D. Galasiu and **M.R. Atif** 363 Applicability of daylighting computer modeling in real case studies: comparison between measured and simulated daylight availability and lighting consumption

Y. Jiang and **Q. Chen** 379 Effect of fluctuating wind direction on cross natural ventilation in buildings from large eddy simulation

C.-M. Chiang and **C.-M. Lai** 387 A study on the comprehensive indicator of indoor environment assessment for occupants' health in Taiwan

E. Djunaedy and **K.W.D. Cheong** 393 Development of a simplified technique of modelling four-way ceiling air supply diffuser

N. Cardinale and **F. Ruggiero** 405 A case study on the environmental measures techniques for the conservation in the vernacular settlements in Southern Italy

A.K. Singh, H. Singh, S.P. Singh and **R.L. Sawhney** 415 Numerical calculation of psychrometric properties on a calculator

J. Ball 421 Can ISO 14000 and eco-labelling turn the construction industry green?

C. Thormark 429 A low energy building in a life cycle—its embodied energy, energy need for operation and recycling potential

E.H. Mathews, D. Arndt and **M.F. Geyser** 437 Reducing the energy consumption of a conference centre—a case study using software

445 Calendar

Vol. 37, No. 5

M.T. Ke 447 Design of test method and detailed ratings of variable air volume fan-coil units

J. Khedari, P. Yimsamerjit and **J. Hirunlabh** 455 Experimental investigation of free convection in roof solar collector

M.W. Ellis and **E.H. Mathews** 461 Needs and trends in building and HVAC system design tools

M.H.F. De Salis, D.J. Oldham and **S. Sharples** 471 Noise control strategies for naturally ventilated buildings

X.F. Gao, Y.T. Lo and **C.M. Tam** 485 Investigation of micro-cracks and microstructure of high performance lightweight aggregate concrete

J.A. Osunade 491 Effect of replacement of lateritic soils with granite fines on the compressive and tensile strengths of laterized concrete

A.A. Peppes, M. Santamouris and **D.N. Asimakopoulos** 497 Experimental and numerical study of buoyancy-driven stairwell flow in a three storey building

Y. Lo and **H.M. Lee** 507 Curing effects on carbonation of concrete using a phenolphthalein indicator and Fourier-transform infrared spectroscopy

M.A. Eben Saleh 515 The transformation of residential neighborhood: the emergence of new urbanism in Saudi Arabian culture

K. Kovler, G. Haquin, V. Manasherov, E. Ne'eman and **N. Lavi** 531 Natural radionuclides in building materials available in Israel

O.A. Jannadi and **M.S. Bu-Khamsin** 539 Safety factors considered by industrial contractors in Saudi Arabia

I. Chand and **P.K. Bhargava** 549 Estimation of driving rain index for India

555 Calendar

Vol. 37, No. 6

Special Section

Guest Editor
Professor M. Santamouris

Editorial
M. Santamouris and **A.G. Hestnes** 555 Office—passive retrofitting of office buildings to improve their energy performance and indoor working conditions

E. Dascalaki and **M. Santamouris** 557 On the potential of retrofitting scenarios for offices

A.G. Hestnes and **N.U. Kofoed** 569 Effective retrofitting scenarios for energy efficiency and comfort: results of the design and evaluation activities within the OFFICE project

M. Santamouris and **E. Dascalaki** 575 Passive retrofitting of office buildings to improve their energy performance and indoor environment: the OFFICE project

C.-A. Roulet, F. Flourentzou, H.H. Labben, M. Santamouris, I. Koronaki, E. Dascalaki and **V. Richalet** 579 ORME: A multicriteria rating methodology for buildings

Regular papers

S.-T. Claros and **A. Soler** 587 Indoor daylight climate–influence of light shelf and model reflectance on light shelf performance in Madrid for hours with unit sunshine fraction

H. Wenbin, H. Ben and **Y. Changzhi** 599 Building thermal process analysis with grey system method

M.I. Khan 607 Factors affecting the thermal properties of concrete and applicability of its prediction models

S.-H. Yoo and **E.-T. Lee** 615 Efficiency characteristic of building integrated photovoltaics as a shading device

S.Q. Wang, Y.P. Wee and **G. Ofori** 625 DSSDSS: a decision support system for dewatering systems selection

W.K. Chow and **G.C.H. Lui** 647 A proposed fire safety ranking system for karaoke establishments and its comparison with the NFPA-fire safety evaluation system

657 Calendar

Vol. 37, No. 7

T. Mingfang 659 Solar control for buildings

S.A. Al-Sanea 665 Thermal performance of building roof elements

D. Bzowska 677 Thermal behaviour of a heated building under random weather condition in Warsaw

S. Wang and **Y. Chen** 691 Fault-tolerant control for outdoor ventilation air flow rate in buildings based on neural network

S.-J. Yang and **W.-S. Fu** 705 A numerical investigation of effects of a moving operator on airflow patterns in a cleanroom

M. Bojic, M. Lee, F. Yik and **J. Burnett** 713 Influence of clearances on the energy performance of window-type air-conditioners at the same level outside residential buildings

J.A. Osunade	727	The influence of coarse aggregate and reinforcement on the anchorage bond strength of laterized concrete
A. Stazi, M. D'Orazio and **E. Quagliarini**	733	In-life prediction of hygrometric behaviour of buildings materials: an application of fractal geometry to the determination of adsorption and suction properties
K. Tan and **S. Deng**	741	A simulation study on a water chiller complete with a desuperheater and a reversibly used water cooling tower (RUWCT) for service hot water generation
A. Moropoulou, Th. Tsiourva, K. Bisbikou, V. Tsantila, G. Biscontin, G. Longega, M. Groggia, E. Dalaklis and **A. Petritaki**	753	Evaluation of cleaning procedures on the facades of the Bank of Greece historical building in the center of Athens
	761	Corrigendum
	763	Calendar

Vol. 37, No. 8–9

Special Issue
Building Performance Simulation at the Start of the 3rd Millennium

J.L.M. Hensen, R. Lamberts and **C.O.R. Negrao**	765	Editorial
J. Burnett and **P. Du Yaping**	769	Mitigation of extremely low frequency magnetic fields from electrical installations in high-rise buildings
P. Riederer, D. Marchio, J.C. Visier, A. Husaunndee and **R. Lahrech**	777	Room thermal modelling adapted to the test of HVAC control systems
I. Beausoleil-Morrison	791	The adaptive simulation of convective heat transfer at internal building surfaces
P. de Wilde, G. Augenbroe and **M. van der Voorden**	807	Design analysis integration: supporting the selection of energy saving building components
S.A. Howell and **I. Potts**	817	On the natural displacement flow through a full-scale enclosure, and the importance of the radiative participation of the water vapour content of the ambient air
D.C. Glaser and **M.S. Ubbelohde**	825	Techniques for managing planar daylight data
F. Miguet and **D. Groleau**	833	A daylight simulation tool for urban and architectural spaces—application to transmitted direct and diffuse light through glazing
S. Citherlet and **J. Hand**	845	Assessing energy, lighting, room acoustics, occupant comfort and environmental impacts performance of building with a single simulation program
Z. Zhai, Q. Chen, P. Haves and **J.H. Klems**	857	On approaches to couple energy simulation and computational fluid dynamics programs
M. Bartak, I. Beausoleil-Morrison, J.A. Clarke, J. Denev, F. Drkal, M. Lain, I.A. Macdonald, A. Melikov, Z. Popiolek and **P. Stankov**	865	Integrating CFD and building simulation
M. Musy, F. Winkelmann, E. Wurtz and **A. Sergent**	873	Automatically generated zonal models for building air flow simulation: principles and applications
A.H. Holm and **H.M. Kuenzel**	883	Practical application of an uncertainty approach for hygrothermal building simulations—drying of an AAC flat roof

G. Augenbroe	891	Trends in building simulation
A. Pedrini, F.S. Westphal and **R. Lamberts**	903	A methodology for building energy modelling and calibration in warm climates
	913	Calendar

Vol. 37, No. 10

J. Sun, G. Tang, L. Zhang and **N. Li**	915	An efficient solution method for predicting indoor environment of buildings with complex geometric configuration
R. Becker	923	Implementation of the performance approach in the investigation of innovative building systems
S. Martinez-Ramirez, A. Zamarad, G.E. Thompson and **B. Moore**	933	Organic and inorganic concrete under SO_2 pollutant exposure
A.C.K. Lai, M.A. Byrne and **A.J.H. Goddard**	939	Particle deposition in ventilation duct onto three-dimensional roughness elements
K.W. Tham, S.C. Sekhar and **D. Cheong**	947	Indoor air quality comparison of two air-conditioned zones served by the same air-handling unit
H. Xing and **H.B. Awbi**	961	Measurement and calculation of the neutral height in a room with displacement ventilation
A. Badagliacca	969	"Bonum": the degree of a universal scale for the comfort metric
A. Badagliacca	975	Theoretical approach to the global comfort problem in the man–environment interactions
C.M. Tam, Z.M. Deng and **S.X. Zeng**	983	Evaluation of construction methods and performance for high rise public housing construction in Hong Kong
M.A. Porta-Gándara, E. Rubio and **J.L. Fernández**	993	Economic feasibility of passive ambient comfort in Baja California dwellings
D. Oktay	1003	Design with the climate in housing environments: an analysis in Northern Cyprus
	1013	Book review
	1015	Erratum
	1017	Calendar

Vol. 37, No. 11

T. Olofsson and **S. Andersson**	1019	Overall heat loss coefficient and domestic energy gain factor for single-family buildings
J. Boland	1027	The analytic solution of the differential equations describing heat flow in houses
H. Jedrzejuk and **W. Marks**	1037	Optimization of shape and functional structure of buildings as well as heat source utilisation. Partial problems solution
R. Chengqin, L. Nianping and **T. Guangfa**	1045	Principles of exergy analysis in HVAC and evaluation of evaporative cooling schemes
D.W. Etheridge	1057	Nondimensional methods for natural ventilation design

U. Larsson and **B. Moshfegh**	1073	Experimental investigation of downdraught from well-insulated windows
D.M. Lorenzetti	1083	Computational aspects of nodal multizone airflow systems
A. Guillemin and **S. Molteni**	1091	An energy-efficient controller for shading devices self-adapting to the user wishes
L. Bellia, A. Cesarano, F. Minichiello and **S. Sibilio**	1099	Setting up a CCD photometer for lighting research and design
A.-S. Choi	1107	Practical applications of form factor computation in lighting calculations
H. Guo, F. Murray and **S.-C. Lee**	1117	Emissions of total volatile organic compounds from pressed wood products in an environmental chamber
H. Huang and **F. Haghighat**	1127	Modelling of volatile organic compounds emission from dry building materials
M.-T. Ke, T.-C. Cheng and **W.-P. Wang**	1139	Numerical simulation for optimizing the design of subway environmental control system
F. Wang and **I.C. Ward**	1153	Radon entry, migration and reduction in houses with cellars
M.A. Mannan, H.B. Basri, M.F.M. Zain and **M.N. Islam**	1167	Effect of curing conditions on the properties of OPS-concrete
G.K. Oral and **Z. Yilmaz**	1173	The limit U values for building envelope related to building form in temperate and cold climatic zones
A. Moropoulou and **S. Kefalonitou**	1181	Efficiency and countereffects of cleaning treatment on limestone surfaces—investigation on the Corfu Venetian Fortress
K. Jitkhajornwanich and **A.C. Pitts**	1193	Interpretation of thermal responses of four subject groups in transitional spaces of buildings in Bangkok
S. Saridar and **H. Elkadi**	1205	The impact of applying recent façade technology on daylighting performance in buildings in eastern Mediterranean
	1213	Calendar

Vol. 37, No. 12

A.J. Klemm, P. Klemm, K. Rozniakowski and **G. Galbraith**	1215	Non-contact methods of measuring moisture concentration in external layers of building partitions. I—The influence of geometrical microstructure on the kinetics of moisture condensation on glass surfaces
A.J. Klemm, P. Klemm, K. Rozniakowski and **T.W. Wojtatowicz**	1221	Non-contact methods of measuring moisture concentration in external layers of building partitions. II—Monitoring of the water vapour condensation on porous surfaces
A.J. Klemm, P. Klemm, K. Rozniakowski and **T.W. Wojtatowicz**	1233	Non-contact methods of measuring moisture concentration in external layers of building partitions. III—Water vapour condensation on the cementitious surfaces
D.A. Coley and **S. Schukat**	1241	Low-energy design: combining computer-based optimisation and human judgement

H. Jedrzejuk and **W. Marks**	1249	Optimization of shape and functional structure of buildings as well as heat source utilisation example
M.M. Gouda, S. Danaher and **C.P. Underwood**	1255	Building thermal model reduction using nonlinear constrained optimization
N.H. Wong, H. Feriadi, P.Y. Lim, K.W. Tham, C. Sekhar and **K.W. Cheong**	1267	Thermal comfort evaluation of naturally ventilated public housing in Singapore
L. Shashua-Bar and **M.E. Hoffman**	1279	The Green CTTC model for predicting the air temperature in small urban wooded sites
A. Laouadi, M.R. Atif and **A. Galasiu**	1289	Towards developing skylight design tools for thermal and energy performance of atriums in cold climates
J. Khedari, S. Ingkawanich, J. Waewsak and **J. Hirunlabh**	1317	A PV system enhanced the performance of roof solar collector
C.N. Kim, W.H. Choi, S.J. Choung, C.-H. Park and **D.S. Kim**	1321	Efficient ventilation of VOC spread in a small-scale painting process
T. Karimipanah and **H.B. Awbi**	1329	Theoretical and experimental investigation of impinging jet ventilation and comparison with wall displacement ventilation
J.P. Rydock and **E. Skåret**	1343	A case study of sub-slab depressurization for a building located over VOC-contaminated ground
H. Huang and **F. Haghighat**	1349	Modelling of volatile organic compounds emission from dry building materials
R.V. Balendran, F.P. Zhou, A. Nadeem and **A.Y.T. Leung**	1361	Influence of steel fibres on strength and ductility of normal and lightweight high strength concrete
S. Martinez-Ramirez and **A. Zamarad**	1369	Effect of different catalysts in SO_2 oxidation over polymeric concrete
S.K. Nilsen, I. Dahl, O. Jørgensen and **T. Schneider**	1373	Micro-fibre and ultra-micro-fibre cloths, their physical characteristics, cleaning effect, abrasion on surfaces, friction, and wear resistance
H. Jedrzejuk and **W. Marks**	1379	Optimization of shape and functional structure of buildings as well as heat source utilization. Basic theory
W.L. Lee, C.K. Chau, F.W.H. Yik, J. Burnett and **M.S. Tse**	1385	On the study of the credit-weighting scale in a building environmental assessment scheme
G. Ofori, G. Gang and **C. Briffett**	1397	Implementing environmental management systems in construction: lessons from quality systems
R. Altherr and **J.-B. Gay**	1409	A low environmental impact anidolic facade
B. Rolfsman	1421	CO_2 emission consequences of energy measures in buildings
	1431	Calendar
		Volume Contents and Author Index for Vol. 37; 2002